

CLAIMS

What is claimed is:

1 1. A method of optical communication comprising:
 2 providing an optical signal;
 3 providing a plurality of data signals;
 4 passing a plurality of desired portions of the optical signal using
 5 a plurality of respective optical modulators, the desired portions individually
 6 having at least one predefined wavelength;
 7 optically modulating the desired portions of the optical signal
 8 using the respective optical modulators and responsive to respective ones of
 9 the data signals; and
 10 outputting the desired portions of the optical signal to an
 11 optical communication medium after the modulating.

1 2. The method of claim 1 wherein the modulating comprises
 2 frequency modulating the desired portions of the optical signal using the
 3 respective optical modulators.

1 3. The method of claim 1 wherein the passing comprises
 2 passing the desired portions of the optical signal having respective different
 3 wavelengths.

1 4. The method of claim 1 wherein the receiving comprises
 2 receiving within the optical modulators having respective different pass
 3 bands, and the passing and the modulating comprise passing and modulating
 4 the desired portions of the optical signal within the respective pass bands of
 5 the modulators and not passing and not modulating other portions of the
 6 optical signal outside of the respective pass bands.

1 5. The method of claim 4 further comprising filtering the
2 other portions of the optical signal using the optical modulators.

1 6. The method of claim 1 wherein the receiving comprises
2 receiving substantially an entirety of the optical signal within the optical
3 modulators.

1 7. The method of claim 1 further comprising:
2 dividing the optical signal into the desired portions; and
3 providing the desired portions to the respective modulators.

1 8. The method of claim 1 further comprising combining the
2 desired portions of the optical signal before the outputting, and wherein the
3 outputting comprises outputting the desired portions to the optical
4 communication medium comprising an optical fiber.

1 9. A method of optical communication comprising:
2 providing an optical signal;
3 providing a data signal;
4 receiving the optical signal and the data signal within an optical
5 modulator;
6 encoding the data signal upon at least a portion of the optical
7 signal by optically modulating at least the portion of the optical signal using
8 frequency modulation; and
9 outputting at least the portion of the optical signal to an optical
10 communication medium after the encoding.

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1 10. The method of claim 9 wherein the receiving comprises
2 receiving the optical signal within the optical modulator comprising a filter
3 having a pass band, and the encoding comprises frequency modulating at
4 least the portion of the optical signal within the pass band.

1 11. The method of claim 10 further comprising filtering other
2 portions of the optical signal outside of the passband using the optical
3 modulator.

1 12. The method of claim 9 wherein the receiving comprises
2 receiving at least the portion of the optical signal within an optical modulator
3 having a filter frequency, and the encoding comprises frequency modulating
4 the filter frequency.

1 13. An optical communications method comprising:
2 dividing a source-light beam into plural carrier-light beams;
3 modulating said carrier light-beams responsive to respective
4 data signals to yield plural encoded-light beams; and
5 combining said encoded-light beams to yield a multiplexed-light
6 beam.

1 14. The method of claim 13 further comprising injecting said
2 multiplexed-light beam into an optical communications channel.

1 15. The method of claim 13 wherein said encoded-light
2 beams have different respective encoded-light wavelengths, said combining
3 step involving frequency-multiplexing said encoded-light beams.

1 17. The method of claim 15 wherein said carrier-light beams
2 have different respective carrier-light wavelengths.

1 18. The method of claim 17 wherein each carrier-light
2 wavelength of a respective carrier-light beam is closer to the encoded-light
3 wavelength of the respective encoded-light beam than to the encoded-light
4 wavelength of any other of said encoded-light beams.

1 19. An optical communication system comprising:
2 a plurality of optical modulators adapted to optically couple
3 with an optical signal and an optical communication medium, and wherein
4 individual ones of the optical modulators are configured to:
5 receive a data signal;
6 pass a desired portion of the optical signal having at least
7 one predefined wavelength;
8 optically modulate the desired portion of the optical
9 signal having the at least one predefined wavelength responsive to the data
10 signal; and
11 output the desired portion of the optical signal after the
12 modulation for application to the optical communication medium.

1 20. The system of claim 19 wherein the optical modulators
2 are configured to frequency modulate the desired portions of the optical
3 signal.

1 21. The system of claim 19 wherein the optical modulators
2 are configured to pass the desired portions of the optical signal having
3 respective different wavelengths.

1 22. The system of claim 19 wherein the optical modulators
2 have respective different pass bands, and the optical modulators are
3 configured to pass and to modulate the desired portions of the optical signal
4 within the respective pass bands and to not pass and to not modulate other
5 portions of the optical signal outside of the respective pass bands.

1 23. The system of claim 22 wherein the optical modulators
2 are configured to filter the other portions of the optical signal.

1 24. The system of claim 19 wherein the optical modulators
2 are individually configured to receive substantially an entirety of the optical
3 signal.

1 25. The system of claim 19 further comprising a divider
2 configured to divide the optical signal into the desired portions and to
3 provide the desired portions to respective ones of the optical modulators.

1 26. The system of claim 19 further comprising a combiner
2 configured to receive the desired portions of the optical signal from the
3 optical modulators, to combine the desired portions, and to provide the
4 desired portions to the optical communication medium comprising an optical
5 fiber after the combining of the desired portions.

1 27. An optical communications system comprising:
 2 a light source for providing a source-light beam;
 3 an optical divider for converting said source-light beam into
 4 plural carrier-light beams;
 5 a modulator array for converting said carrier-light beams into
 6 encoded-light beams, said modulator including means for receiving plural
 7 data signals, said modulator array converting each of said carrier-light beams
 8 into a respective one of said encoded-light beams as a function of a
 9 respective one of said data signals; and
 10 an optical combiner for combining said encoded-light beams to
 11 yield a multiplexed-light beam.

1 28. The system of claim 27 wherein said optical combiner
 2 injects said multiplexed-light beam into an optical communications channel.

1 29. The system of claim 27 wherein each of said encoded-
 2 light beams has a respective encoded-light wavelength, no two of said
 3 encoded light-beams having the same encoded-light wavelength, said optical
 4 combiner frequency multiplexing said encoded-light beams to yield said
 5 multiplexed-light beam.

1 30. The system of claim 29 wherein said carrier-light beams
 2 share a common carrier-light wavelength.

1 31. The system of claim 29 wherein said plural carrier-light
 2 beams have respective carrier-light wavelengths, no two of said carrier-light
 3 beams having the same carrier-light wavelengths.

- 1 32. The system of claim 31 wherein the carrier-light
- 2 wavelength for each of said carrier-light beams is closer to the encoded-light
- 3 wavelength of the respective encoded-light beam than to the encoded-light
- 4 wavelength of any other encoded-light beam.

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